

Confidential Report

Southern Regional Research Laboratory
New Orleans 19, Louisiana
April 25, 1947

To: Director and Division Heads

From: Survey and Appraisals Section, Cotton Processing Division

Subject: Survey Notes

This memorandum has been prepared, more or less as an experiment, to bring to the Laboratory staff certain items of current information relating to cotton and competitive materials. Comments will be welcomed as to the desirability of preparing similar memoranda in the future and in regards to coverage and content.

LINT COTTONPrice of Cotton

The price of cotton on April 17th was 34.78 cents (M-15/16", 10-market average) as compared with 30.89 cents in November 1946, 36.07 cents in October, and 11.00 cents average during the 1940-41 crop year. The parity price, as of March 1947, was 28.40 cents. Futures price, October delivery, New Orleans Cotton Exchange, was 29.69 cents on April 17th. Premiums and discounts for grade and staple (as compared with M-15/16") in points (hundredths of a cent) were as follows:

	: 13/16	: 1-3/16	: SGO	: SGM
	: inch	: inch	:	:
March 1947	: -261	: +481	: -801	: +58
Nov., 1946	: -321	: +454	: -1,016	: +61
March 1946	: -331	: +700	: -831	: +55
	:	:	:	:

Cotton Consumption

Cotton consumption totaled 9,827,116 bales during calendar year 1946, establishing a peacetime record, and comparing with 9,142,035 bales during 1945, and 11,433,444 bales during 1942, the all-time record year. Consumption in March 1947 totaled 875,000 bales as compared with 840,000 bales in February 1947 and 804,000 in March 1946. In 1946, cotton comprised 69 percent of the total mill consumption of all textile and cordage fibers in the United States, which totaled 7,199 million pounds. In comparison, rayon comprised 12 percent; wool, 11 percent; jute, 2 percent; hard fibers, 5 percent; and silk, flax, and hemp combined, 1 percent of this total. Total mill consumption of all of these fibers was 6,455 million pounds (70 percent cotton) in 1945, and 7,486 million pounds (75 percent cotton) in 1942, the peak year.

Varieties Grown in Different States

According to an article "Technologist Cites Cotton's Progress in Past 20 Years" by Francis L. Gerdes, Cotton Branch, U.S.D.A., more than four fifths of the cotton production in the United States represents seven varieties. The principal varieties now widely grown across the Cotton Belt, listed in alphabetical order, include Acala, Coker, Deltapine, Half and Half, Mebane, Rowden, and Stoneville.

The varieties by states are as follows:

North Carolina -----	Coker
South Carolina -----	Coker
Georgia -----	Deltapine
	Stoneville
	Coker
Alabama -----	Deltapine
	Stoneville
	Coker
Mississippi -----	Deltapine
	Stoneville
	Coker
	Delfos
Tennessee (Western) -----	Deltapine
Louisiana -----	Deltapine
Arkansas -----	Deltapine
	Stoneville
	Rowden
Missouri -----	Deltapine
	Stoneville
Texas	
High Plains -----	Half and Half
Central and Southcentral -----	Rowden
Northeastern -----	Rowden
East Texas -----	Deltapine
Gulf Coastal Area -----	Deltapine
South Texas -----	Stoneville
All Areas (except High Plains) -----	Mebane
Irrigated area (El Paso District) -----	Acala 1517
Various Areas in Texas -----	Lockett 140
	Northern Star
	Western Prolific
	Macha
Oklahoma	
All counties, mostly Eastern -----	Deltapine
Various counties -----	Stoneville, 2B
	Rowden
Western Oklahoma (snapped cotton) -----	Northern Star, Lockett 140,
	Hibred
New Mexico (Mesilla and Pecos Valley) -----	Acala 1517, Acala 2815
Arizona -----	Acala
California -----	Shafter Acala

Cotton Trade Journal, March 8, 1947.

COTTON LINTERS

Consumption of Linters Pulp in Rayon Industry Increases Slightly in 1946 Over 1945.

Total consumption of cellulose by the rayon industry reached an all-time peak of 426,000 tons in 1946 of which 25 percent was linters pulp and 75 percent was wood

pulp. Consumption of linters in viscose rayon declined slightly; but increased somewhat in acetate rayon, as compared with 1945.

Consumption of cellulose in rayon industry, 1937-1946

	: Linters	Wood	Total	:: Linters	Wood	Total
	: pulp	pulp		:: pulp	pulp	
	Thousand tons			Percent		
All processes	:			::		
1937	: 42	139	181	:: 23	77	100
1943	: 55	281	336	:: 16	84	100
1945	: 103	297	400	:: 26	74	100
1946	: 105	321	426	:: 25	75	100
Viscose and	:			::		
Cupra.	:			::		
1937	: 14	139	153	:: 9	91	100
1945	: 80	245	325	:: 25	75	100
1946	: 75	270	345	:: 22	78	100
Acetate	:			::		
1937	: 28	-	28	:: 100	-	100
1945	: 23	52	75	:: 31	69	100
1946	: 30	51	81	:: 37	63	100

Mostly compiled from Rayon Organon.

Prices of Linters Pulp and Wood Pulp Reaches All-Time High.

Prices for purified cotton linters and dissolving wood pulp have reached unusually high levels since removal of O.P.A. price ceilings as indicated by following quotations in cents per pound:

Year	:	Wood pulp			
	: Cotton	: Standard	: High-ten.	: Acetate	
	: linters	: viscose	: viscose	: and cupra.	
	: pulp	: grade	: grade	: grade	
	: Cents	: Cents	: Cents	: Cents	
1940	: 6.6	: 3.8-4.2	: 5.0	: 5.0	
1945	: 8.7	: 4.8	: 5.0	: 5.5	
1946, Oct.	: 13.2	: 5.9	: 6.2	: 6.4	
1947, Feb.	: 21.2	: 6.6	: 7.0	: 7.4	

Linters pulp quotations from producers, wood pulp quotations from Rayon Organon.

Celanese to Produce Own Cellulose Requirements

Celanese Corporation of America will construct a \$15 million plant in the north-west coastal area of British Columbia for production of 200 to 400 tons per day of highly purified cellulose for chemical purposes, it was announced by Harold Blancke, president. A tract of 15,000 sq. miles of forest land has been reserved by the British Columbia government for use by the Port Edward Cellulose Co., Ltd., subsidiary of Celanese, which will provide, it is said, a perpetual wood supply. Production should be available in about two years. "When operations are begun the plant will supply approximately 50% of Celanese-acetate cellulose requirements," and will make Celanese a wholly integrated operation.

Journal of Commerce, March 13, 1947

(Many magazine and newspaper publishers already have made similar moves in order to assure themselves of wood pulp supplies in the face of acute shortages, but Celanese is the first American rayon concern to take such a step. Celanese is the most highly integrated rayon company, already manufacturing its own acetic anhydride and also spinning, knitting, and weaving part of its own rayon production.)

COTTON MANUFACTURING INDUSTRIES

Profits in Cotton Goods Manufacturing

According to the National City Bank of New York, 46 companies manufacturing cotton goods made an average return of 27.1 percent (after taxes) on their net worth in 1946 as compared with 7.8 percent in 1945. Following are returns for various industries:

Group	: No. of : : companies :	Percent return	
		1945	1946
Cotton goods	: 46	: 7.8	27.1
Silk and rayon	: 13	: 9.5	24.5
Woolen goods	: 7	: 10.3	25.2
Clothing and apparel	: 31	: 9.8	23.3
Tires, rubber products	: 27	: 10.7	20.6
Iron and steel	: 51	: 5.1	7.5
Agricultural imple-	: :	: :	:
ments	: 12	: 7.1	5.7
Nonferrous metals	: 26	: 5.8	7.1
Baking	: 23	: 10.2	21.8
Dairy products	: 16	: 12.0	18.9
Meat packing	: 17	: 5.4	10.8
Total manufacturing:	1,511	: 9.3	12.1
	: :	: :	:

(National City Bank Newsletter, March, 1947)

Textile Machinery Production Increasing Rapidly but Booked Far Ahead

"Production rates in big (textile) machine shops in Southern New England have been expanding for months, as more and better materials become available and skilled textile machinists return. Backlogs of unfilled business on March 1 remained in approximately the same ratio to productive ability as at the close of 1946." A wait of 2-1/2 years for spinning and carding equipment and one year on looms can be expected. Hosiery knitting machinery cannot be delivered short of a year. Prospects are no better for finishing machinery. Market is drained of second hand machinery. It is reported that \$80 a spindle recently was paid for used machinery being shipped to South America.

Journal of Commerce, March 11, 1947

COTTON PRODUCTS

Production of Cotton and Rayon Tire Fabric

Production of tire fabric apparently was at all-time peak levels during the last quarter of 1946, totaling 141 million pounds, of which 60.1 percent was cotton. Cotton's percentage was 59.4 percent for all of 1946, 61.0 percent for 1945, and 73.8 percent for 1944.

Production of tire fabric, United States, 1944-46

<u>Thousands of pounds</u>									
	Cotton					Rayon			
	Tire cord	Chafer &	Tire cord	Total		Cord &	Tire	Total	Total
	fabrics	all other	not wov-			other	cord not		
	fabrics	en				fabrics	woven		
1944	155,932	44,954	64,357	265,243	:	87,225	7,163	94,388	359,631
1945	165,647	54,244	62,592	282,483	:	165,428	15,334	180,762	463,245
1946	:	:	:	:	:	:	:	:	:
1st qtr.	39,377	15,245	17,128	71,750	:	51,208		51,208	122,958
2nd qtr.	40,197	18,623	19,622	78,442	:	52,511		52,511	130,953
3rd qtr.	39,259	18,787	17,279	75,325	:	46,932	5,102	52,034	127,359
4th qtr.	42,668	21,708	20,660	85,036	:	50,589	5,858	56,447	141,483
Total	161,501	74,363	74,689	310,553	:	212,200		212,200	522,753
	:	:	:	:	:	:	:	:	:

Use of Lint Cotton in Paper

In the small but important fine paper industry (with a high rag content for durability) "difficulties have set in as a result of (1) use of synthetic resins in finishing and (2) synthetic fibers." In cooking rags to prepare for paper, all nylons, rubber threads, asbestos and glass fibers and other new synthetic fibers are pestiferous to the paper maker. They form indissoluble globules which clog his rollers and tear big hunks out of the still wet paper as it comes through.

The synthetic textile men have done their job so well, paper men report, that some of the materials can't be dissolved even in acid. Surplus materials made for the Army and Navy are worst, containing anti-fungus chemicals and dyes which render them useless for paper making. As these chemically treated materials and synthetics are indistinguishable in many cases from cotton textiles, they have caused many sales rejections to rag sorters and so are a problem to the waste material industry.

Since the end of the O.P.A., cotton rag prices have increased 60% to 80% partly because of higher cost of sorting out synthetic fabrics. More and more paper makers are resorting to raw cotton. If the price of cotton should decline markedly, paper technicians see the possibility of a wide industry switch to the use of this commodity in its raw form.

Wall Street Journal, March 22, 1947

Visking Corporation Begins Production of Nonwoven Cotton (and rayon) Sheeting

The Visking Corporation (makers of sausage casings in Chicago) is entering production of non-woven cotton and rayon sheeting trade named "Viskon," to be manufactured and produced in a new plant being erected at Little Rock, Arkansas. According to a letter from the company, "Viskon" is bonded with an insoluble agent which results in a non-woven cotton or rayon cloth of high wet strength. It can be carefully washed, ironed, and dry cleaned. It is porous, absorbent, nontoxic, and fast to water and dry cleaning solvents. The absence of lint (as compared to woven cloth) is another outstanding characteristic."

"Viskon" is manufactured of rayon or cotton in plain, colored, and fire retardent finishes; with dense, standard, and fine finishes; in various weights. It sells for 4.5 to 10.2 cents per square yard.

"Visking" is at present doing a fine job where it is being used in plate and frame filter presses for filtering of edible oils, glucose, varnishes, sugar liquors, 40% caustic soda, and many other substances." A list of present and potential uses includes dairy filters, table cloths, wall coverings, meat carcass wraps, tobacco cloths, cheese discs, friction tape, towels."

Samples are on file in Survey and Appraisal Section.

Letters from The Visking Corporation,
March 11th and 12th, 1947.

Texas Cotton Committee Conducts Research on Use of Short Staple Cotton in Towels

Lubbock, Tex., March 11.--Herbert E. Keike, committee superintendent of textile research, announces that toweling is being made from short staple west Texas cotton in the laboratories of the Cotton Research Committee of Texas at the Texas Technological College here.

Mr. Keike pointed out that towels manufactured by the committee are about one-third more absorbent and are superior on abrasion tests than other towels tested, which were made of long staple cotton yarn.

He stated that should towel manufacturers adopt the use of short staple cotton yarn, the value of cotton produced in the west Texas area will be greatly increased.

Journal of Commerce, N. Y., March 12, 1947.

Rayon Replaces Cotton for Automotive Belts

Adoption of rayon cords in place of cotton as the strength giving members in all its light-duty and automotive V-belts, producing up to 50 per cent longer life, has been announced by B. F. Goodrich Co.

Paul W. Van Orden, manager of belt sales, said the new construction, involving also use of heat-resisting rubber compounds, would particularly increase belt life "under today's conditions of higher temperatures and increasing belt speeds and loads." Besides autos, the V-belts are widely used on motors that operate home washing machines, refrigerators, and deep-freeze and air-conditioning units.

The belts have much less permanent stretch, Mr. Van Orden said, not only because of the characteristics of the rayon itself, but also because of increased adhesion between cords and rubber. He added that for some services the new rayon-reinforced V-belts are preferable even to belts in which steel wire is used, because they are more resilient and resistant to shock fatigue.

Journal of Commerce, N.Y., March 3, 1947.

COMPETITIVE MATERIALS

New Paper Bags Developed for Potatoes

"One of significant packaging developments of past year in the produce field has been the tremendously increased demand for wet-strength paper bags for the pre-packaging of potatoes at the shipping point, according to officials of the Union Bag and Paper Corporation." Potatoes are put up in 10-, 15-, and 50-pound packages, and require no further packaging before reaching consumer. The new potato bags are "the result of long scientific experiments," "many test shipments, etc." "Bags are perforated to permit potatoes to 'breathe', absorb moisture from bruised or broken potatoes, etc., without disintegrating. They are made of 2 or 3 plies of paper based on weight they must carry. A recent development is use of "balers." These are large paper bags in which 4 of the 15-pound bags, or 6 of the 10-pound bags can be placed. The bag is then sealed and handled as one unit.

Southern Pulp and Paper Journal,
February 15, 1947, p. 28.

Paper Sheets, Bath Mats, Towels, etc., Proposed.

High strength paper, developed (by National Bureau of Standards) primarily for war maps, "offers numerous yet unexplored peacetime uses--such as for bed sheets, bath mats, washable towels, wrappings for wet meats and vegetables, and outdoor advertising." It is manufactured like conventional paper except for a shorter beating cycle and addition of melamine-formaldehyde resin. Experiments are continuing at National Bureau of Standards directed toward development of even more durable and stronger papers.

Southern Pulp and Paper Journal, Feb.15, 1947.

DuPont Finds Corn Cobs Yield Important Raw Material for Nylon

A new process to use corn cobs as a base in making one of the two chief raw materials for nylon has been developed by E. I. du Pont de Nemours & Co.

By a new chemical process, a tan, almond flavored liquid called furfural, little known as yet as a chemical, can be made from the corn cobs. From the furfural, du Pont will make adipo-nitrile for producing nylon salts.

A new plant is being built at Niagara Falls to make adipo-nitrile by this method. The furfural will be obtained from the Quaker Oats Co. which is the chief producer. It is estimated that about 200 million pounds of corn cobs will be needed to supply the new du Pont plant yearly.

Furfural was originally made by Quaker from oat hulls but the demand for it for use in refining petroleum increased so sharply that there was not enough of this waste material. Therefore, the corn cob process was developed.

Furfural also can be made from rice hulls, cotton seed, peanut shells and other agricultural waste. An important new market has thus been opened for these formerly useless farm products. Furfural now sells for around 10 cents a pound.

Wall Street Journal, March 22, 1947.

Nylon Staple Being Introduced by DuPont

DuPont is now introducing nylon staple, and hopes to use it in blends with cotton and wool. "Nylon is light, can stand five times the pull and three times the abrasion (of wool), doesn't shrink, and is moth-proof," and will make possible "wool" socks that won't need darning so soon, sweaters that will resist shrinking in the wash, summer worsteds that will fend off wrinkles and wear.

Nylon "cotton"--made from staple without the crimp-- will go into handsome and very long-wearing sheets for hotels and hospitals, into fabrics for men's shirts and women's summer dresses."

"Sweaters made of half nylon and half wool can be given an ordinary washing without shrinking and without needing to be blocked. Baby sweaters of ultra-fine all nylon staple are expected to be particularly good because they are not itchy and can be doused in boiling water if baby spits up."

"Men's socks are already being made, and sold, of 65% nylon and 35% wool. They will stand ordinary washing and wear, du Pont says, twice as long as pure wool. Pure nylon socks are fleecy and light and stand extra hard wear."

"Tropical weight suitings of 25% nylon and 75% wool look like the finest worsteds, and are light and tough wearing. Overcoatings with as little as 20% nylon will not wear out quickly at the cuffs and lapels. Flannels for men's slacks and women's suits that can be washed at home can be made of various combinations of nylon, wool, rayon, and cotton."

"Nylon fabrics and nylon blends are expected to be popular with hotel people because they'll wear so well. Carpets of nylon, now in the experimental stage, will last longer in public rooms where foot traffic is heavy. Nylon brocades and velvets for furniture will stand up under rough treatment. Curtains will stay clean longer and stand more washing. Nylon summer uniforms for the hotel staff will stay crisp."

"The new nylon staple will at the beginning be considerably more expensive than natural fibres--it will sell for \$1.50 to \$1.75 a pound depending on the fineness of the fibre. In comparison, some types of wool in similar condition, ready for the mill, would now sell for approximately \$1 to \$1.25 a pound, according to grade."

"Both natural and synthetic fibres may compete in a price decline during years ahead. So far as du Pont is concerned, its history is clearly one of steady price cutting as volume and lower costs make this possible. Cellophane, for instance, now sells at 33 cents per pound, compared with \$2.65 two decades ago. The price of hosiery-nylon is now \$2.15 a pound, compared with \$3.53 a pound in 1940; the most recent price slash came last week."

Wall Street Journal, February 24, 1947, article entitled, "Nylon Opens 'Freindly War' on Wool, Cotton After Licking Silk."

Vinyon 'N' Developed by Carbide and Carbon

A new vinyl yarn that shows promise in a large number of textile applications will soon be available in semi-commercial quantities from Carbide & Carbon Chemicals Corp.

The yarn has dimensional stability in boiling water (one of principal drawbacks of original Vinyon) and can readily be dyed dark and brilliant shades with a wide range of the usual chemical fiber colors. It also has the high strength

and good resistance to chemical attack characteristic of vinyl yarns now in commercial production. Like them, it will not support combustion, is water-resistant, and is completely unaffected by micro-organisms and insects.

Marketed as Vinyon yarn, type N, the material is basically different from other vinyl materials. It is produced from a white, powdery resin that results from the copolymerization of vinyl chloride and acrylonitrile. This resin is dissolved in acetone and spun on equipment similar to that in general use for making acetate rayon. Both the resin and finished yarn will be available in limited quantities this summer from development units now under construction at the South Charleston, W. Va., plant.

The present natural color of Vinyon yarn, type N, is light gold and it is expected that a completely white yarn will soon be produced. Only small amounts are being made at present from laboratory facilities, but when the production units are operating, considerably larger amounts will be spun in standard deniers from 35 to the heaviest counts required for industrial uses. Distribution for test and small-scale fabrication, will be handled by the company's New York office.

Journal of Commerce, N. Y., March 3, 1947

New Fiberglass Plant to be Built on Pacific Coast

Purchase of a 42-acre plant site in Santa Clara, Calif., and plans to erect a Fiberglas factory there to supply western markets, were announced by Owens-Corning Fiberglas Corp. The site is in the Bay area, about 40 miles south of San Francisco. No date for construction has been announced but company said it is likely 1,000 may be employed when facilities are completed, probably late in 1948.

Wall Street Journal, March 10, 1947

Grading of Wool at Source Attempted in Texas

U. S. Department of Agriculture, Texas A. & M. College, and the National Wool Growers Association are cooperating in an attempt to sort, skirt, and grade the domestic wool clip. Five hundred thousand pounds of Texas wools were sorted and graded at Fort Worth, Texas under the joint direction of the Texas Wool and Mohair Association, and Texas A. & M. College and were shipped to such companies as Botany Worsted Mills, North Star Woolen Company, and Kent Manufacturing Co., Botany reported complete success from high character of "top" to resulting economies in handling. Dr. Francis J. Cronin, Director of Wool Division, USDA, said the project, including sale of the sorted wool and the scouring and sale of the off-sorts or shorter fibers, will show a profit. Object is to eliminate cost to manufacturer of sorting and grading (good graders are scarce) and to compete with the sorted and graded Australian wools, which at present have an 8 to 10 percent lower conversion cost.

A second half of the project involves sorting Texas wools into 8 types and baling the sorted and graded wool with a compressor under the direction of Warner Buck of the Wool Division, USDA, and Dr. Stanley Davis, wool specialist of Texas A. & M. This project will probably be extended to Wyoming under direction of Dr. John A. Hill, Dean of the School of Agriculture.

Wool Digest 1, p. 8 (Feb. 1, 1947)

GENERAL

Big Expansion Seen in Gulf Coast Chemical Industry

Louisiana-Texas coast area may become No. 1 chemical manufacturing area of the country with \$300 million plant expansion during the war, another expansion of a third of a billion dollars now underway. Building costs are estimated to run 25% to 35% below North and East (warmer climate is important in this connection). Raw materials are cheap, and there is cheap water transportation. Wage rates are about the same as elsewhere. Companies involved include Shell Chemical Co., Diamond Alkali Co., DuPont, Dow, Celanese, Monsanto, Corn Products Refining Co., Carbide and Carbon Chemical.

Wall Street Journal, March 17, 1947.

